Impact of physical memory and VM on app performance
Thrashing behavior

→ as a function of memory demand

→ app has configurable memory demand

App completion time:

→ sudden onset

→ also: physical memory is 1 GB
Actual CPU time consumed by app:
Time evolution: page fault rate and disk I/O rate

![Graph of page fault rate and disk I/O rate over time for 1GB]
Time evolution: idle process CPU time

![Graph showing CPU utilization over wall clock time](image)